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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
09/273,691	03/22/99	HUANG T	64.600-039

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EXAMINER	
QI, Z	
ART UNIT	**PAPER NUMBER**
2871	

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Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary	Application No. 09/273,691	Applicant(s) HUANG
	Examiner MIKE QI	Group Art Unit 2871

☐ Responsive to communication(s) filed on _____

☐ This action is **FINAL.**

☐ Since this application is in condition for allowance except for formal matters, **prosecution as to the merits is closed** in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire 3 month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

Disposition of Claim

☒ Claim(s) 1-22 is/are pending in the applicat

Of the above, claim(s) _____ is/are withdrawn from consideration

☐ Claim(s) _____ is/are allowed.

☒ Claim(s) 1-22 is/are rejected.

☐ Claim(s) _____ is/are objected to.

☐ Claims _____ are subject to restriction or election requirement.

Application Papers

☒ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

☐ The drawing(s) filed on _____ is/are objected to by the Examiner.

☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.

☐ The specification is objected to by the Examiner.

☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

☒ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

☐ All ☐ Some* ☒ None of the CERTIFIED copies of the priority documents have been

☒ received.

☐ received in Application No. (Series Code/Serial Number) _____.

☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

*Certified copies not received: _____

☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

☒ Notice of References Cited, PTO-892

☐ Information Disclosure Statement(s), PTO-1449, Paper No(s). _____

☐ Interview Summary, PTO-413

☒ Notice of Draftsperson's Patent Drawing Review, PTO-948

☐ Notice of Informal Patent Application, PTO-152

--- SEE OFFICE ACTION ON THE FOLLOWING PAGES ---

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claim 16, "... at least five spaced-apart and parallel repair lines laid out around a circuitry on said TFT-LCD," but in the following "... said at least three repair lines ..." that would be contradict with the number. Which number is correct in this claim?

Claim Rejections - 35 U.S.C. § 103

3. The following is a quotation of 35 U.S.C. 103 (a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 1-22 are rejected under 35 U.S.C. 103 (a) as being unpatentable over US 6,100,948 (Kim et al) in view of US 5,517,341 (Kim et al) and US 5,995,178 (Fujikawa et al).

Claims 1, 10 and 20, Kim's 948 discloses (col. 4, lines 1-68, and in Fig.5, prior art paragraph) a repairable matrix display composing:

- a TFT-LCD equipped with wirings such as gate lines (G_1,G_2,G_3,...) and data lines (D_1, D_2, D_3...), i.e., a first multiplicity of buslines;

- using repair lines (RL) intersects the gate lines and the data lines with an insulating layer therebetween and the repair lines (RL) formed around a display region, i.e.,the repair lines positioned outside and in parallel with a circuitry on the TFT-LCD.

Kim's 948 does not disclose expressly coating a black matrix film on a glass cover plate and patterning the black matrix film having apertures corresponding to the repair lines, so that the laser beam can pass therethrough.

However, Kim's 341 discloses (col.3, lines 12-28, and in Fig.2, prior art paragraph) a TFT-LCD with redundant connection in which the black matrix (20) is formed by appropriately patterning a light-shielding layer (i.e., positioned juxtaposed tothe repair lines and the buslines), using a conventional photolithography process to define the aperture area (i.e., coating the black matrix film on the front glass plate 101), so that the laser beam can pass the aperture to perform the repair for the buslines. The glass substrate (101) would be a cover plate.

Concerning claim 20, Kim's 341 discloses (col. 7, lines 3-21) using laser beam to cut the short circuit between the scanning line and the signal line occurring at the cross portion, so that the laser beam must pass through the aperture.

Fujikawa also discloses (in Example 1) by the irradiation of an energy beam, the disconnected scanning line (15) are electrically connected via the metal portion (29a). Gate signals are transmitted through this bypass, thereby jumpering the disconnection (28). Such that to repair a defective circuit must find the defective location first, and then to use laser beam

irradiation energy to repair the defective circuit, and that would have been obvious to those skilled in the art.

Therefore, a front-side repairable TFT-LCD comprising repair lines and black matrix film having apertures to allow a laser beam to pass and repair the lines defects as claimed in claim 1, 10 and 20 would have been obvious.

Claims 2-3, 15-16, concerning the repair lines spaced-apart is three or five, Kim's 341 discloses (col.1, lines 47-51) a large screen display to obtain a high definition image needs to increase the number of pixels. When the number of pixels increased, the aperture ratio would be decreased, so that the brightness would be decreased. The repair lines are corresponding to the apertures. So that to arrange the spaced-apart between the repair lines would affect the aperture ratio. Therefore, to select a proper spaced-apart between repair lines to attain an optimum results for the definition and the brightness of the image at least is obvious. Therefore, to select the three or five spaced-apart and parallel repair lines intersect the buslines to achieve an optimum display for the definition and the brightness as claimed in claims 2-3 and 15-16 would have been obvious.

Claims 4 and 17, the first multiplicity of buslines comprises gate buslines and data buslines that is an obvious designation for the gate buslines and the data buslines.

Claims 5, 8, 11-12, see the explanation of Kim's 341 above. Patterning the black matrix film by a photolithographic method and forming the apertures in the black matrix film by an etching method was conventional.

Claims 6-7, 9, 13-14, 18-19, 21-22 see the explanation of Kim's 341 and Fujikawa above. Using the irradiation of a laser energy beam through the apertures either for welding the connections or for severing to cut the shorted circuits, and first must find the defective location, and then to effecting the repair, as claimed in those claims would have been obvious.

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mike Qi whose telephone number is (703)308-6213 .

Mike Qi
December 18, 2000

KENNETH PARKER
PRIMARY EXAMINER